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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* JONATHON MICHAEL STALL,
GREGG BERNARD MISKELLY,
RICHARD MICHAEL BYERS,
and ERIC HURWITZ FEIVESON

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Appeal 2015-005253
Application 12/337,431[1]
Technology Center 2100

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Before MAHSHID D. SAADAT, NORMAN H. BEAMER, and MICHAEL J. ENGLE, *Administrative Patent Judges*.

ENGLE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of claims 1–18, 21, and 22, which are all of the claims pending in the application. A hearing was held on April 27, 2017. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

*Technology*

The application relates to executing portions of an instruction set "in different domains by inserting domain switch points in the instruction set." Spec. Abstract.

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[1] Appellants state the real party in interest is Microsoft, Inc. App. Br. 3.

*Illustrative Claim*

Claim 1 is illustrative and reproduced below with the limitations at issue emphasized:

> 1. A method of executing in at least two domains a target instruction set targeting an instruction set architecture and stored in a memory of a computer having a processor, the method comprising:
>
> *prior to initiating execution of the target instruction set, executing on the processor a domain-switching instruction set configured to:*
>
> *for a selected instruction set portion of the target instruction set:*
>
> *among at least two domains in which the selected instruction set portion is executable by the processor, receive a selected domain; and*
>
> *prior to initiating execution of the target instruction set, modify the target instruction set by inserting into the target instruction set, before the selected instruction set portion, an instruction instructing a domain switch point specifying the selected domain;*
>
> initiating execution of the target instruction set in an initial domain; and
>
> upon detecting in the target instruction set an instruction instructing a domain switch point transitioning to a target domain in the target instruction set, transitioning execution of the target instruction set to the target domain.

*Rejections*

Claim 22 is rejected under 35 U.S.C. § 101 as being directed to ineligible subject matter. Final Act. 2.

Claims 1, 2, 6, 7, 14, 21, and 22 are rejected under 35 U.S.C. § 103(a) as obvious over Bratt et al. (US 5,537,538; July 16, 1996). Final Act. 3.

Claim 3 is rejected under 35 U.S.C. § 103(a) as obvious over the combination of Bratt and Pedersen et al. (US 2007/0220334 A1; Sept. 20, 2007). Final Act. 9.

Claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as obvious over the combination of Bratt and Tang et al. (US 2004/0098707 A1; May 20, 2004). Final Act. 10.

Claims 8–11 and 15 are rejected under 35 U.S.C. § 103(a) as obvious over the combination of Bratt and Breslau et al. (US 6,345,311 B1; Feb. 5, 2002). Final Act. 12.

Claims 12 and 13 are rejected under 35 U.S.C. § 103(a) as obvious over the combination of Bratt, Breslau, and Morel et al. (US 6,230,212 B1; May 8, 2001). Final Act. 15.

Claim 16 is rejected under 35 U.S.C. § 103(a) as obvious over the combination of Bratt and Kobayashi (US 2003/0084432 A1; May 1, 2003). Final Act. 16.

Claim 17 is rejected under 35 U.S.C. § 103(a) as obvious over the combination of Bratt, Kobayashi, and Breslau. Final Act. 17.

Claim 19 is rejected under 35 U.S.C. § 103(a) as obvious over the combination of Bratt and Shapiro et al. (US 7,568,185 B1; July 28, 2009). Final Act. 18.

## ISSUES

1. Did the Examiner err in finding Bratt teaches or suggests all the limitations recited in claim 1?

2. Did the Examiner err in concluding claim 22 was directed to ineligible subject matter under 35 U.S.C. § 101?

## ANALYSIS

### *§ 103: Claims 1–18, 21, and 22*

Claim 1 recites "prior to initiating execution of the target instruction set, executing on the processor a domain-switching instruction set configured to . . . receive a selected domain . . . and . . . modify the target instruction set by inserting into the target instruction set . . . an instruction instructing a domain switch point specifying the selected domain." Independent claim 22 recites commensurate limitations. *See* App. Br. 16.

The Examiner relies on Bratt for teaching or suggesting these limitations. Ans. 5–8. Bratt teaches switching to and from a debug mode:

> The processor system is switchable between a normal mode of operation without precise floating point exceptions and the debug mode. The programmer of software to run on the system can program switches into and out of debug mode or the system operating system can perform the switches.

Bratt 2:41–45. Bratt teaches using an "instruction" to switch between modes. For example, if running in debug mode, Bratt explains that

> [a]t step 414 [in Figure 4] the processor determines whether a 'switch to normal mode' instruction has been received. If the result in step 414 is 'YES,' the processor switches to the normal mode of operation without precise exceptions, as shown at a step 416. If the result in step 414 is 'NO,' the processor continues to operate in debug mode, as illustrated by a loop 418.

Bratt 8:13–21; *see also id.* 8:5–10. Thus, Bratt teaches a loop waiting to receive an instruction to switch to the other mode.

Appellants argue "[t]he cited portion of Bratt teaches only that such 'switches' may be initiated by the programmer" (App. Br. 21) whereas the claims require "the modification of the target instruction set is achieved by a domain-switching instruction set executing on the processor, rather than by a

programmer." Reply Br. 9. Appellants rely on paragraph 19 of the Specification, which discusses how "domain switch points may be inserted in the instruction set." Spec. ¶ 19; App. Br. 21–22; Reply Br. 9–10. Specifically,

> this insertion *may be* automated, e.g., by identifying particular types of instructions that are better executed in different domains and inserting domain switch points before such instructions specifying a transition of the execution to the preferred domain, without involving the user or developer in such decisions and resource overhead.

Spec. ¶ 19 (emphasis added, original emphasis omitted).

However, we agree with the Examiner that Appellants are arguing limitations from the Specification that are not in the claims. Ans. 28. The Specification says insertion "may be" automated, not "must be." Spec. ¶ 19. This is a non-limiting example, not a definition, and "although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc).

Appellants also have not sufficiently addressed the actual claim term ("executing on the processor a domain-switching instruction set") or explained why that step must be automated rather than performed by a programmer. The Examiner has set forth findings supported by citations that Bratt teaches "the programmer . . . can program switches into and out of debug mode" and therefore "the domain-switching instruction set is that which enables a programmer to insert a 'switch to debug mode' instruction into a program: a compiler or a text editor, for example." Ans. 5 (citing Bratt 8:6–8, 2:43–44). Yet Appellants have not adequately addressed the Examiner's findings, such as explaining why a compiler or text editor used

by a programmer to insert mode-switching instructions would not constitute the claimed domain-switching instruction set.

Appellants also argue the Examiner cannot rely solely on knowledge of a person of ordinary skill in the art to fill in missing claim elements. App. Br. 22–23; Reply Br. 5–8. However, as discussed above, the Examiner did not rely solely on such knowledge. Instead, the Examiner made specific findings with supporting citations to Bratt (Ans. 5–6), such as finding Bratt teaches "[t]he programmer . . . can program switches into and out of debug mode" (Bratt 2:43–44) using "a 'switch to debug mode' instruction" (Bratt 8:6–8, Fig. 4). The Examiner's consideration of these express teachings from the perspective of a person of ordinary skill in the art is required by both statute and case law. 35 U.S.C. § 103(a) ("would have been obvious . . . *to a person having ordinary skill in the art*") (emphasis added); *Star Sci., Inc. v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1374 (Fed. Cir. 2011) ("Whether prior art invalidates a patent claim as obvious is determined from the perspective of one of ordinary skill in the art."). And as discussed above, Appellants have not sufficiently addressed the Examiner's findings regarding a programmer inserting instructions using a compiler and text editor. A programmer using a text editor and a compiler prior to initiating execution of the target instruction set may not be the only way to accomplish Bratt's mode-switching instruction, *see* App. Br. 19–20, but the question here is obviousness, not inherency.

Accordingly, we sustain the Examiner's rejection of independent claims 1 and 22, and dependent claims 2–18 and 21, which Appellants do not argue separately. *See* 37 C.F.R. § 41.37(c)(1)(iv).

*§ 101: Claim 22*

The preamble of independent claim 22 recites a "computer-readable memory device." The Specification does not expressly define a computer-readable memory *device*, but does expressly provide examples of a computer-readable *medium*. *E.g.*, Spec. ¶ 48 ("The term 'computer readable media' may include . . ."). The examples of a computer-readable medium include both transitory embodiments (e.g., "carrier wave" or "signal") and non-transitory embodiments (e.g., "a CD-R, DVD-R, or a platter of a hard disk drive"). *Id.* ¶¶ 48, 38. The Examiner thus concluded that claim 22 was directed to ineligible subject matter of transitory signals. Ans. 34–35 (citing Spec. ¶ 48); Rev. App. Br. 5 (citing Spec. Fig. 6 element 92, ¶ 38 ll. 3–7).

Appellants argue "computer-readable memory device" is not synonymous with "computer-readable medium" but rather is a *subset*. Reply Br. 3. However, even if Appellants were right, they have not sufficiently explained whether or why that subset necessarily excludes all non-transitory embodiments. For example, the word "device" can mean a technique or way of making something happen. Here, the Specification states a "carrier wave" or "signal" is one permissible technique to practice the invention. Spec. ¶ 48. We therefore are obligated to apply the Board's precedent that "where, as here, the broadest reasonable interpretations of . . . the claims . . . covers a signal *per se*, the claims must be rejected under 35 U.S.C. § 101 as covering non-statutory subject matter." *Ex parte Mewherter*, 107 USPQ2d 1857, 1862 (PTAB 2013) (precedential).

Accordingly, we sustain the Examiner's rejection of claim 22 under 35 U.S.C. § 101.

## DECISION

For the reasons above, we affirm the Examiner's decision rejecting claims 1–18, 21, and 22 under 35 U.S.C. § 103 and further rejecting claim 22 under 35 U.S.C. § 101.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 41.50(f).

AFFIRMED